TABLE 1

THE GROWTH OF LACTOBACILLUS CASEI IN THE PRESENCE OF VARYING AMOUNTS OF BIOTIN, DESTHIOBIOTIN, AND COMBINATIONS OF THE TWO, AFTER 72 HOURS AT 37° C.

Micrograms biotin per liter	Photometer readings	Micrograms desthiobiotin per liter	Photometer readings	0.025 micrograms biotin per liter, varying amounts desthiobiotin	Photometer readings	2,500 micrograms desthiobiotin per liter and varying amounts of biotin	Photometer readings
0.0	4.5	0.0	4.5	0.0	19.0	0.0	5.0
0.015625	15.0	0.015625	11.0	7.181	22.0	0.0125	3.0
0.03125	22.0	0.03125	6.0	15.625	20.0	0.025	3.0
0.0625	34.0	0.0625	7.5	31.25	19.0	0.05	6.0
0.125	53.0	0.125	7.5	62.5	18.0	0.1	8.0
0.25	64.0	0.25	7.5	125.0	14.0	0.2	22.0
				250.0	11.0	0.4	56.0
				500.0	13.0	0.8	60.0
				1000.0	9.0	1.6	62.0
				2000.0	5.0		
2,500.0	70.0	2,500.0	4.0	4000.0	4.0		

desthiobiotin was added to the biotin can not be ascribed to the effect of the high concentration of this substance in the medium because the organism made an excellent growth in the presence of 2,500 micrograms of biotin. An examination of the last two columns of Table 1 furnishes more conclusive evidence of the anti-biotin effect of desthiobiotin. While smaller amounts of biotin failed to overcome the blocking effect of desthiobiotin within the time limit of the experiment, larger quantities readily neutralized the anti-biotin effect of this substance. Even after an incubation of 24 hours, 0.4 microgram of biotin per liter effectively overcame the effect of 2,500 micrograms of desthiobiotin.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A RAPID METHOD FOR MAKING PERMANENT MOUNTS OF MOSQUITO LARVAE

MOSQUITO larvae as well as other soft-bodied insects are frequently mounted on glass slides for taxonomic study and permanent safekeeping. There are several common mounting methods, plus numerous variations now being used by mosquito taxonomists. Rather serious disadvantages, however, are encountered in the use of three of the most commonly used techniques.

Canada balsam is an old and excellent mounting medium, but the generally accepted technique of dehydration in alcohols and clearing in xylol frequently results in a collapsed, brittle specimen with many lost and broken hairs. In addition the use of this technique requires a great deal of time, since the clearing process is usually quite lengthy.

Euparal is another resin frequently used, but it is now almost impossible to obtain and if obtainable is quite expensive. To secure best results with the use of this material, specimens should be placed in ethylene glycol mono-ethyl ether (Cellosolve solvent) before being mounted in euparal.

Many workers advocate mounting in an aqueous medium such as Berlese's chloral gum solution or one of its modifications. By the use of this substance specimens may be mounted directly from water after being killed. This is an excellent temporary medium, but it should not be used for permanent mounts because it evaporates badly, hardens very slowly, and even if the cover slip is ringed it will frequently evaporate and ruin the slide. This medium also tends to discolor after a period of a few years.

A technique has been worked out at this laboratory which eliminates many of the above disadvantages and results in a permanent preparation. The procedure is as follows: larvae are killed in hot water and then placed in 70 to 75 per cent. ethyl alcohol for 10 to 15 minutes. This time may be shortened somewhat if the venter is pierced in several places with a minuten nadeln or similar fine pointed needle. The specimen is next placed in 95 per cent. alcohol for 3 to 5 minutes and from there is dropped into absolute alcohol for about 5 seconds. It is then placed in creosote U.S.P. until the specimen has cleared sufficiently. In the case of a very delicate specimen the creosote should be diluted with equal parts of absolute alcohol before being placed in undiluted creosote. The time the specimen should remain in creosote will vary but is generally only a matter of a few minutes. Several larvae may be placed in the creosote at one time and the clearest ones removed first. The specimen is finally placed on a clean glass slide, excess creosote removed, but care should be used not to touch the larva. It is then covered with Canada balsam, oriented, and the cover slip applied. If the tip of the abdomen is severed while in the balsam, the slide should be held for several days to permit the balsam to harden. The cover slip can then be applied. This prevents the severed portion from drifting and makes a more presentable mount.

A wide-mouth medicine dropper or a small curved spatula should be used to transfer the specimens and care should be used to handle them as little as possible.

This procedure is quite rapid, the ingredients are readily available, the specimens do not collapse or harden and lastly the preparation is a permanent one.

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